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# Interorganizational Influences: A Multi-Dimensional Approach

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INTERORGANIZATIONAL INFLUENCE: A MULTI-  
DIMENSIONAL APPROACH

by  
James Lucas

A Thesis Submitted to the Faculty of the Graduate School  
of Loyola University of Chicago in Partial Fulfillment  
of the Requirements for the Degree of  
Master of Arts

March  
1978

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## VITA

The author, James Edward Lucas, is the son of Herman Edward Lucas and Theresa (Calloni) Lucas. He was born on April 12, 1952, in Chicago, Illinois.

His elementary education was obtained in the Catholic parochial schools in Chicago, and secondary education at Marist High School, also in Chicago.

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## INTRODUCTION AND REVIEW OF RELATED LITERATURE

This thesis will be concerned with the construction, and subsequent testing, of an empirically based, predictive model of interorganizational influence. We will begin by reviewing the literature in both the organizational and community organization fields. From this review a number of variables shall be chosen as components of the model. A factor analytic solution will be derived from these variables, and factor scores will, in turn, be calculated, and by utilizing a multiple regression analysis, the predictive power of the model will be tested.

Of particular interest at this point in the development of organizational theory is the question of how organizational environments shape the growth and behavior of the total organization. Earlier explanations of organizational change were focused on internal change (Weber, 1947). The increase in internal "rationalization" brought about change. The organizational environment had been largely ignored.

Along with the rise in prominence of corporate actors or "juristic persons," as Coleman calls them (1974:14), interest in interorganizational relations and interorganizational power has also increased. It is important to understand the interchange which takes place between organizations in order to understand why certain organizations within a given community are viewed as powerful by other organizations. Numerous authors (cf. Levine and White, 1963; 1972; Katz and Kahn, 1966; Emery and Trist, 1969; Yuchtman and Seashore, 1967; Warren, 1972; Evan, 1972) have emphasized the importance of interorganizational relations. On the other hand, relatively few studies have dealt with them empirically (cf. Turk, 1970; 1973; Galaskiewicz, 1976).

Even less has been done with regard to organizational power. As a result, the main focus of this study will be upon interorganizational power. We want to know which organizations tend to be powerful. That is, given the fact that we know a number of characteristics of a given organization, we want to see how well we can predict the organization's power. In the past, the emphasis has been upon such characteristics such as the amount of funds, number of employees or members, type of budget, etc., an organization possesses. However, in light of recent research (cf. Laumann, et al., 1974; Galaskiewicz, 1976) an actor's positions in various networks seems to have a great deal of importance with regard to the amount of control he wields.

As a consequence, this investigation will stress the importance not only of such resources as funds, number of employees or members, but also the importance of structural variables such as an organization's position in various networks and its dependence upon the community for funds.

It is also important to keep in mind that we will be viewing the community as an organizational matrix--a system of organizations. Essentially, we are interested in which variables or characteristics are important in determining an organization's position in the power hierarchy of a given community.

The theoretical underpinnings of such an approach are many and varied. This study's theoretical foundation is basically comprised of four theoretical perspectives: (1) open-systems theory; (2) the systems resource approach; (3) exchange theory; and (4) network analysis. In this section a theoretical overview and literature review will be provided along with the theoretical perspective the study itself will assume.

Theorists such as Talcott Parsons (1956) and Alvin Gouldner (1959)



applied the organic analogy to organizations in an attempt to illustrate a natural-system model. In such an analogy organizations are perceived as systems which derive their nourishment or energy from external sources--the organizational environment.

The notion of an open-system model for organizations was more fully developed by Katz and Kahn (1966) and Emery and Trist (1969). Katz and Kahn argue that most large-scale organizations are not self-contained, and are very dependent upon the social effects of their output for energy renewal. They speak of input-throughput-output processes, wherein an organization's energy comes from the external environment. The organizational environment includes not only the material environment, but individuals and other organizations as well. The organization creates a new product, processes material, trains people, provides a service, etc., i.e., this step entails the reorganization of input. Finally, organizations export some products into the environment.

The most salient feature of this approach is the notion of "negative entropy" or the idea that the trend in open-systems is to maximize its ratio of imported to exported energy (Katz and Kahn, 1966:19-23). This provides the basis for the assumption that organizations must become members of organizational networks in order to obtain energy and resources.

Emery and Trist (1969:241) also adopt an open-system approach. However, they develop this somewhat farther and argue for the change or development of the environment itself. They develop four types of environments: (1) placid-randomized; (2) placid-clustered; (3) disturbed reactive; and (4) turbulent fields (Emery and Trist, 1969:246-248). The authors are arguing that the organizational environments are becoming increasingly unpredictable, with rapid, large-scale changes taking place and market

conditions becoming more and more uncertain. As a result, organizations have a great deal of difficulty making decisions because of this uncertainty.

The important thing to keep in mind is that the recent changes in organizational environment have been such as to greatly increase the ratio of externally induced to internally induced change. This also would lead one to believe that it is essential for an organization to be a members of various networks in order to insure stability and survival. This can be evidenced by the increasing numbers of trade associations.

In her expansion of the work of Emery and Trist, Shirley Terreberry (1968), has focused upon this point, and in addition feels that other organizations are becoming increasingly important parts in the environment of any focal organization. With the advent of the "turbulent field" (Emery and Trist, 1969:248), "The critical organizational response now involves complex operations, requiring sequential choices based upon the calculated actions of others, and counteracting." (Terreberry, 1968:601) The author feels that an evolution, in the manner of Durkheim, from mechanical to organic solidarity is taking place on the organizational level (Terreberry, 1968:601). Thus there is an increase in the functional interdependence of organizations and the consequent formation of organizational networks.

There has also been a growing literature on the relation of organizational behavior to its environment, especially with regard to an organization's interaction with other organizations (cf. Thompson and McEwen, 1958; Litwak and Hylton, 1962; Levine and White, 1963; 1972; Evan, 1972). Along this same vein, Roland Warren (1972:307) has emphasized the need for research to focus upon the field within which organizations interact. Warren develops the concept of "interorganizational field" (IOF).

The concept of IOF is based upon the observation that the interaction between two organizations is affected . . . by the nature of the organizational pattern or network within which they find themselves. (Warren, 1972:308)

Another important perspective which has come out of the open-system model, and is closely related to the power-dependence approach, is the systems resource approach or resource dependence approach developed by Yuchtman and Seashore (1967). The systems resource approach is primarily concerned with resource transactions.

The authors feel that the ". . . value of such resources is to be derived from their utility as (more or less) generalized organizational activity." (Yuchtman and Seashore, 1967:897). Thus the focus of competition between organizations centers upon these scarce and valued resources. Furthermore, such competition underlies the emergence of hierarchical differentiation among organizations.

Moreover, this approach is useful in terms of the way in which it broadly defines resources.

. . . /R/ resources are (more or less) generalized means or facilities that are potentially controllable by social organizations and that are potentially usable--however indirectly--in relationships between an organization and its environment. (Yuchtman and Seashore, 1967:900)

The authors have noted a number of important considerations with regard to resources. First, certain resources are, relatively, more liquid, in the traditional economic sense; they are more readily exchangeable for other kinds of resources the organization needs (Yuchtman and Seashore, 1967:900). Also, some types of resources may be stored, accrued and accumulated without a significant depreciation. Political influence, for example, is notoriously unstable as opposed to money or credit (Yuchtman and Seashore, 1967:900). Third, although almost all resources are relevant to organizations for

exchange or transformation, certain resources are more relevant for an organization than others (Yuchtman and Seashore, 1967:901). Finally, a number of resources are of universal relevance in the sense that all organizations must be capable of obtaining these resources in order to survive (Yuchtman and Seashore, 1967:901). Some examples of this are: personnel, physical facilities, and a liquid resource.

Yuchtman and Seashore provide one of the major linkages between the interorganizational field or interorganizational relations, and the notion of interorganizational power. Mindlin and Aldrich (1975:382) point out that the basic tenet of such an approach--i.e., the resource dependence approach--is that organizations must be studied in the environment and the interorganizational field in which they are competing for and sharing scarce and valued resources. An important consequence of this resource competition is the emergence of dependency of an organization on other organizations, as well as, dependency upon the parent organization (cf. Child, 1972; 1973; Hinings and Lee, 1971; Inkson, et al., 1970; Jacobs, 1974). Yuchtman and Seashore argue that such an assumption provides the foundation for their definition of "organizational effectiveness," wherein effectiveness is the ability of an organization to obtain resources from its environment without becoming dependent--maintaining an autonomous bargaining position.

Another important concept for this study is the notion of power, which is also closely tied with the resource dependence approach. There has been much written on the topic of power. As Coleman has pointed out (1972:145), power has been ambiguously defined in social organization. It is sometimes used to refer to the relations between individual actors (cf. Emerson, 1962; Dahl, 1968), while at other times it is defined as the relationship between an actor and an event or activity (cf. Hunter, 1953; Freeman, 1968). More-

over, the notion of power has referred to a dimension or ordering by transitivity, while at other times it has been viewed as intransitive. However, in spite of the diversity in the definition of power, the differences have not so much reflected disagreement over fundamental processes or functions, as they have reflected the distinctions, emphases or foci of interest of various authors.

There has been a great deal of difficulty in dealing with the concept of power. Possibly as important, if not more so than power itself, is the perception of power. Bachrach and Lawler (1976:123) have noted the importance of the analysis of the perception of power. In interactions between actors involving power, perfect information, with regard to one's own and another's power, is often lacking. The authors feel that as a result of this ambiguous perception of power capabilities actors are forced to use "situational cues" to form subjective power estimations. Power capabilities may be feigned. For example, through impression management actors can manipulate another's perceptions of their power capabilities in order to acquire greater concessions (Bachrach and Lawler, 1976:123).

This is important because organizations base their decisions upon information feedback with regard to their environments. As a result, perception of power capabilities are as important as an objective measure of power, which we do not possess. Thus, the real state of affairs may be only partially known, and need not correspond to that which is subjectively experienced by an actor. "If men define situations as real, they are real in their consequences" (Thomas, 1932:572).

An important factor in the study of interorganizational relations and interorganizational power is how dependent an organization is on other organizations that control resources and markets that insure its survival.

Exchange theory has played a major role in the development of the theoretical perspective of power in the sociological literature. The basic tenet of exchange theory is that the value attributed to various resources and the scarcity of alternative resources provide the basis for social relationships.

/R/eciprocal exchange . . . involves complementary needs which participants can meet for one another, but not for themselves. (Blau, 1955:139)

The basic assumption of exchange theory is that actors enter into new social relationships because they expect that to do so would be intrinsically rewarding, and if they continue their relations with old associates and expand their interactions with them they will be profitable (Blau, 1968: 343; Ekeh, 1974:29).

There are two other principles that are essential to exchange theory. The first of these is the "principle of social scarcity," which states that scarcity of any product that possesses value compels the intervention of society in the distribution of that product (Ekeh, 1974:46). Secondly, this scarcity of a product requires the formulation of exchange rules (cf. Gouldner, 1959; 1960; Blau, 1964a). These norms define the patterns of reciprocation practiced in exchange.

The paradox of social exchange is that it serves not only to establish networks, based upon trust between actors, but it also creates power differences between actors (Blau, 1968:455). A benefactor is not a peer, so to speak, but rather a superior on which another actor depends. If the actor returns benefits to the benefactor, thereby discharging their obligations, they have denied the benefactor's claim to superior status or bargaining position. Should the beneficiary fail to reciprocate with benefits as valuable to the benefactor, then they have validated the benefactor's claim to a superior status.

As Emerson has pointed out (1962:32-35), the power of an actor to control another actor resides in its control over the resources the other actor values. More simply stated, power lies in the other's dependency.

The recurrent unilateral supply of important benefits or resources is a basic source of power. In consequence, an actor with resources at its disposal which enable it to meet the needs of other actors can attain power provided a number of conditions are met. The beneficiary must not possess resources the benefactor needs, otherwise the actor can obtain the resources needed through direct exchange. Secondly, the beneficiary must be unable to obtain the needed resource from alternative sources. Moreover, the beneficiary must not undergo a change in values that allows him to do without the benefits he originally needed--a functional alternative. Finally, the beneficiary must be unwilling to take what he needs by force (Emerson, 1962:36-40; Blau, 1968:456).

On the organizational level, the importance of exchange between an organization and its environment, along with the resources it possesses, play an important role in shaping its behavior. Levine and White have defined organizational exchange as ". . . any voluntary activity between two organizations which has consequences, actual or anticipated, for the realization of their respective goals or objectives" (Levine and White, 1972:344).

In terms of a resource dependence perspective, organizational behavior must be studied in the context of the organizations with which it is competing for scarce resources. In this regard the Aston group (cf. Pugh, et al., 1969; Inkson, et al., 1970; Hinings and Lee, 1971) has done a good deal of research utilizing the concept of dependence, which was later replicated (cf. Child, 1972; 1973) with the same results. However, Jacobs (1974:52) and Mindlin and Aldrich (1975:382-389) have criticized the Aston group's concept of

dependence on both theoretical and methodological grounds.

At the theoretical level, the Aston group did not adequately differentiate between an organization's dependence upon its parent organization and dependence on other organizations (Mindlin and Aldrich, 1975:384). Methodologically, the scales used to measure dependence were comprised of various "diverse elements" which may well not be good indices of the construct in question (Jacobs, 1974:52).

The importance of interaction between various organizations has been stressed both implicitly or explicitly in open-systems theory, the systems resource approach and exchange theory. In this regard, S. F. Nadel has stated:

We arrive at the structure of a given society through abstracting from the concrete population and its behavior patterns or networks (or systems) of relationships obtaining between actors and their capacity of playing roles relative to one another. (1957:12)

Further, Nadel has defined a network as ". . . interlocking of relationships whereby the interactions implicit in one determine those occurring in others." (Nadel, 1967:16) This ties in closely with the work of Emerson on power-dependence relations.

A number of theorists have argued that the relation, rather than the actor, is the object of analysis with regard to power (cf. Blau, 1964; 1968; Cartwright, 1965). Until recently only a few sociologists have focused upon the relation or structure of relations as the unit of analysis.

More recently, Laumann (1973) and Laumann, et al. (1974) have taken a systematic approach to the study of patterned relationships. Laumann, et al. (1974:163) have noted that we are interested in the structure of relations among actors, rather than the actors themselves. Along these same lines, Granovetter (1973) employed network imagery to analyze an ethnic neighborhood.



Also, White et al. (1975) developed block modelling as a technique for the analysis of networks.

Similarly, Turk (1970:1973) has noted the importance of interorganizational networks in urban communities for the social organization of the community. Turk argues the importance of these networks in understanding the political implications for the community.

Galaskiewicz (1976) used multi-dimensional scaling to analyze different networks, as did Laumann et al. (1974). He looked at the effects of an organization's position in the information, money and support networks on the organization's participation in various community issues. Galaskiewicz's study revolved around the analysis of the structural position of organizations in the three networks. Of particular importance with regard to network analysis is his utilization of the concept of centrality. According to Galaskiewicz (1976:30-31), actors are central in a particular network when they ". . . are better able to reach all other actors in the network and who are able to be reached by others in a minimum number of steps."

In retrospect, there were two emphases throughout each of the above mentioned theories. These emphases were resources and dependence, which will be of primary importance throughout this study.

Before proceeding with the study itself, several points should be made by way of introduction. First, the purpose of this study is the construction, and subsequent testing of a predictive model. Such a model will attempt to predict an organization's reputed power given the fact that we know a number of the organization's characteristics, e.g., size, expendible funds, etc.

Secondly, it should be kept in mind that we are looking at the geographical community as a system. That is, the community will be viewed as a system of numerous patterned relationships between organizations embedded

in the community structure (Galaskiewicz, 1976; Laumann, et al., 1978).

Third, and finally, with regard to power, two things should be kept in mind: (1) power and influence will be used interchangeably throughout the paper since these two terms are not clearly distinguished in the literature; and (2) when we use the term power or influence we shall mean reputed power or influence, i.e., how influential or powerful an organization is perceived of as being by other organizations in the community.

Being aware of the pitfalls of such an approach to power, it seems useful, nonetheless, because organizations are viewed as rational actors by other organizations, and will act, therefore, according to the way in which they perceive the situation (Simon, 1953:36; Bachrach and Lawler, 1976:123).

As mentioned above, this approach comes from several traditions: (1) open-systems theory; (2) exchange theory; (3) resource dependence theory; and (4) network analysis. Given what the exchange theorists, open-systems theory and resource dependence approach tell us, we would expect various resources an organization possesses, an organization's position in various resource networks, and its resource dependency to be good predictors of an organization's reputed influence.

In this regard we shall take resources in their broadest meaning, as do Yuchtman and Seashore (1967:900). They view resources as any potentially controllable means or facilities which are usable in the relation between an organization and its environment. Thus, not only funds, but things such as size, average education of members, and number of administrators an organization has will be viewed as constituting resources.

According to the exchange theorists (Blau, 1964; Homans, 1974; Emerson, 1962), as well as the resource dependence approach, an actor's dependence upon suppliers of various resources is important in determining an actor's

power. In this study dependence will be measured in various conceptually different ways.

In this study our measure of resource dependence will be one over the total number of suppliers of a particular resource--i.e., the inverse of the number of suppliers. Organizations with a large number of resource inputs are not as dependent on a single organization as are organizations with only a few resources inputs (Jacobs, 1974:53; Mindlin and Aldrich, 1975:389).

As Thompson (1967) argues, organizations will seek to avoid the concentration of their dependence on a small number of suppliers, thereby avoiding contingencies and constraints that may be placed upon them by an organization which is the sole source of a particular resources--i.e., monopoly. When an organization has a large number of alternative suppliers of a particular resource it is better able to bargain. It is less subject to the demands of a single supplier.

Generally, the higher the dependence ratio, the more an organization is dependent on its supplier, and as Emerson (1962) and Thompson (1967) point out, the less powerful or influential such an organization is likely to be. It should be noted in passing that this measure does not take into account the relative importance of each supplier.

There are at least two other conceptually different measures of dependence which we shall use. The first of these is local community dependence (Galaskiewicz, 1976), which deals with an organization's dependence upon the local community in which it is located. This will be measured in two ways: (1) the total amount of locally acquired expendible funds an organization has; and (2) the total amount of local expenditures--i.e., funds spent within the community. Clark (1973) and Laumann, et al. (1978) have argued that the more economically dependent an organization is upon the local community, the more

likely it is to be active in community decisions, and consequently, the more likely it is to be perceived of as powerful.

Another concept of dependence deals with an organization's autonomy with regard to its parent or sister organization. This will be measured in two ways: (1) as a categoric variable, which indicates whether an organization is an independent, i.e., with no parent or sister organization, a parent organization, or a branch organization; and (2) the ratio of the size of the local organization to the total national organization.

Furthermore, because we are assuming an open-system approach it is important to look at networks of which the focal organization is a member. We shall argue, as does Galaskiewicz (1976:30), that the structural position of an organization in various networks is important. Consequently we shall utilize his concept of centrality. He writes that actors who are more central are those who are better able to be reached in a "minimum number of steps" (Galaskiewicz, 1976:30).

## CHAPTER II

### METHOD, ANALYSIS AND RESULTS

#### Research Site

This study is a secondary analysis of data originally collected for a study done at the University of Chicago (cf. Galaskiewicz, 1976) and is therefore subject to the limitations of secondary analysis. The research site, Towertown, was a medium-sized, fairly well established community with a population of about 52,000. The site was located in the heart of the midwestern cornbelt. As a result the community had a strong agricultural base which added to the autonomy of its economy. Also, there was a large state university located at the site.

A list of organizations was compiled from local directories, phone books and personal contracts. In all, 101 executives or officers from these various organizations were interviewed. Each official was asked questions with regard to his own organization, as well as questions about other organizations in the community. Of these 101 organizational executives interviewed, 73 were primary agents, while 15 were secondary agents--i.e., more than one official from a particular organization was interviewed. Finally, thirteen organizations did not appear on the original list, in regard to which the respondents were asked to answer questions.

Throughout this study we shall be concerned with the 73 primary agents. We do not wish to duplicate information by including the secondary agents. Moreover, the thirteen organizations which were not included on the original list will not be included because of the importance of reported networks

which would be affected by their absence from the original list passed out by the interviewer.

### Procedure

The main objective of this study is the construction and subsequent testing of a model that will aid in the prediction of an individual organization's power. The overall hypothesis of the study is that the power of an organization within a given community is based upon not only resources such as the amount of funds, or number of employees, but is also dependent upon structural variables such as centrality in various networks, resource dependency, dependency upon the community, and its autonomy with regard to its parent or sister organization.

In the construction of such a model the first step is the reduction of data. For this purpose factor analysis will be utilized to cut down on the number of variables. For example, if we were to start with about 25 variables they would become unwieldy in a model, however, by using factor analysis these variables could possibly be reduced to five or six factors. Although factors or dimensions from a factor analytic solution are not to be reified, they do aid in narrowing the focus of research by indicating the underlying factor or dimension of a number of variables.

The second step is to calculate the factor scores for the organizations. Next, the factors obtained from the factor analytic solution will be used as individual terms in a regression equation, i.e., as independent variables. These will in turn be used to predict reputed power of an organization, the dependent variable.

By using multiple regression we can test the effectiveness of our model based upon the amount of variance it explains.

### Items Employed

For the factor analysis items were selected on the basis of four considerations. First, items were chosen for substantive reasons. Second, an item had to meet the criteria for data of factor analysis--i.e., interval data or ordinal data with a large number of categories. Third, items or variables which had a large number of missing cases were not used. Finally, as a result of the sample size, the number of variables had to be restricted. If the number of variables exceeds the number of cases, then no more factors than the number of cases can be extracted. As a consequence, a sufficient number of variables and cases should be included to enable the major factors to emerge (cf. Cattell, 1952; Rummel, 1970:219-221). According to the rule of thumb, established by Cattell (1952) and Rummel (1970:220), the minimum allowable ratio of cases to variables is 4 to 1, e.g., 40 cases for ten variables.

In light of this discussion, four resource variables were chosen. These were: (1) the total amount of expendible funds (Funds); (2) the number of local employees or members (LOCEMPL); (3) the average education of members or employees of an organization (AVERDDUC); and (4) the total number of staff or administrators (ADMINS). These are variables which have been traditionally used in organizational studies (cf. the Aston Group).

More importantly for this study, are a number of structural variables, i.e., variables dealing with patterned relationships (cf. Nadel, 1957). As a result, we have incorporated three measures of centrality which are measures of environmental exchange. (For a more extensive theoretical and methodological discussion of centrality one should consult Galaskiewicz (1976:30-34). These include centrality in (1) information networks, (2) in the money network, and (3) the moral support network.

The age of an organization was also included as a structural variable, the argument being that the longer an organization has existed in a community, the more ties it is likely to have (Stinchcombe, 1972).

Furthermore, we have included a number of dependency measures. First, we will use the percentage of total income from the local community (INFLDK) and the percentage of total expenditures in the local community (OUTFLDK) as an organization's "local community dependence" (Galaskiewicz, 1976).

The autonomy of an organization, with regard to its parent or sister organization will be measured in two ways. First, it will be measured in terms of the ratio of the size of the local organization to the size of the parent organization ( $AUTONOMY = LOCEMPL / NATLEMP$ ). Thus, the larger the ratio, the more autonomous the organization (cf. Jacob, 1974). Secondly, we will use a categorical variable (HDQT) which measures whether an organization is a local-branch, absentee-branch, or a parent organization.

Finally, resource dependency will be measured by taking the inverse of the number of suppliers of a particular resource. This will be done for information (INFODEP), Money (MONEYDEP), and moral support (SUPPDEP). Thus, the larger the ratio, the more dependent the organization is on a few organizations for its resources. This addresses interorganizational exchange (Blau, 1968; Yuchtman and Seashore, 1967).

Our dependent variable, power, will be measure as reputed power. That is, those organizations which were seen as being influential by other organizations in the community (INFLRNK).

### Analysis

The method of factoring used was principal factoring with iterations (Kim, 1975:470). This procedure keeps replacing the main diagonol of the original correlation matrix with improved communality estimates ( $h^2$ ) until



the previous solution--iteration--is as good as the present one. That is, the iterative procedure continues until the incremental improvement in communality estimates falls below a predetermined cutoff point. The assumption being that additional iterations will not improve the communality estimates.

A varimax orthogonal rotational procedure was employed. This procedure maximizes the variance of the squared loadings across a factor. When the variance of a factor is maximized there should be numerous higher loadings, asymptotically approaching one and numerous small loadings, approaching zero (Gorsuch, 1974:191-195).

The initial extraction's goal is to maximize the amount of variance extracted by the minimum number of factors. After the first few factors have been extracted we begin to get specific factors. And after these we are, for the most part, explaining random variance. As a result, we must have some means of determining how many factors should be retained.

There have not been any successful statistical techniques for doing this. However, the mathematical technique of calculating and plotting characteristic roots or eigenvalues, i.e., the scree test, has proven fairly successful for specifying the upper limit for the number of common factors (Gorsuch, 1974:152-158; Kim, 1975:470ff.; Rummel, 1970:361; Harman, 1976:163).

The curve for the eigenvalues and the number of factors is plotted. Once the curve begins to flatten out, one is looking at specific factors and random variance. The rule of thumb in using this technique is to retain only those factors with an eigenvalue of 1.0 or better. Equally important is that these factors which are retained make substantive sense.

Looking at the scree test from our factor analytic solution (see Figure 1) there is a substantial decrease in eigenvalues from the fourth

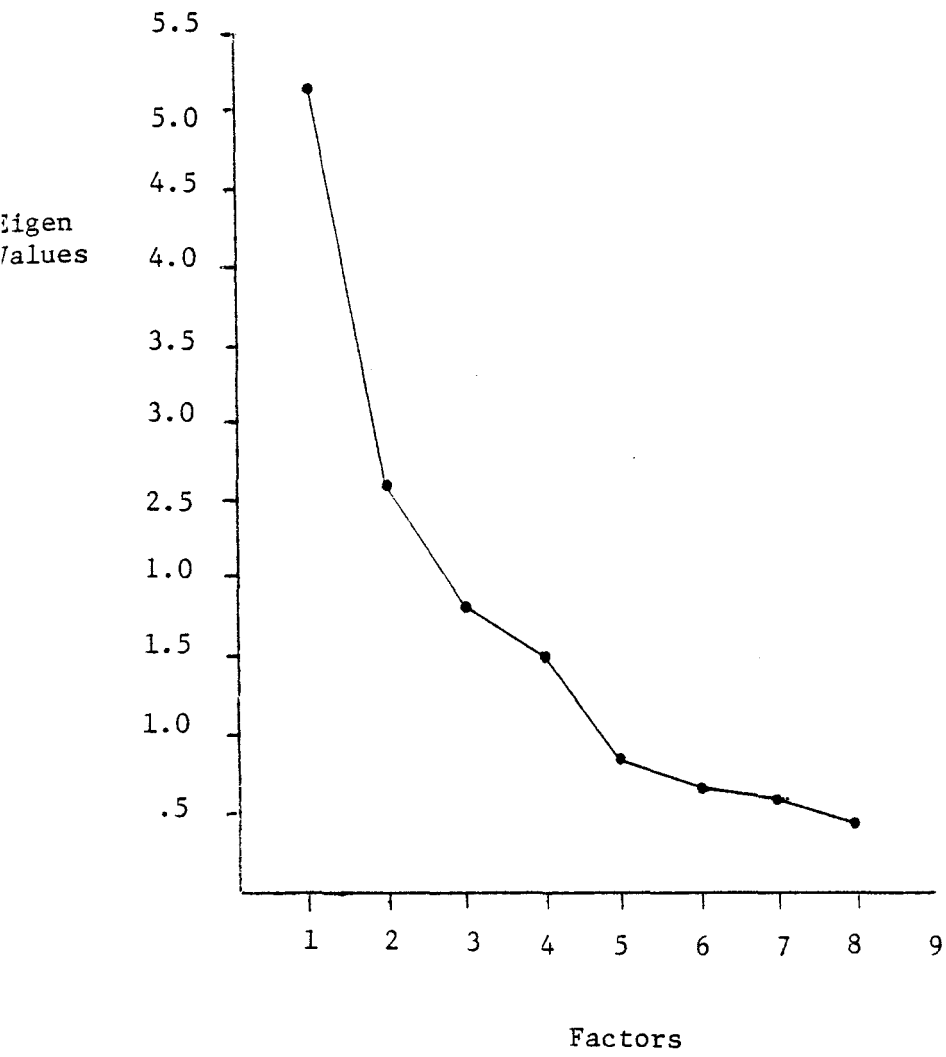


TABLE 1

## FACTOR MATRIX USING PRINCIPAL FACTOR

	Factor 1	Factor 2	Factor 3	Factor 4
FUNDS	-0.20552	0.82977	0.07178	0.14454
AVEREDUC	0.77328	0.21696	0.43100	-0.03138
ADMINS	-0.01480	0.93556	0.01413	0.20455
INFLDK	0.64302	-0.31258	0.53537	-0.14373
OUTFLDK	0.66998	-0.18536	0.53984	-0.12468
INFSSAS	0.83564	-0.11410	-0.33013	0.36598
MONSSAS	0.71583	-0.24348	-0.06406	0.07565
SUPSSAS	0.73069	-0.16679	0.27192	0.20417
AGELOCAL	0.25469	0.10578	0.32723	0.20435
HDQT	0.66195	0.31511	0.18644	-0.17200
AUTONOMY	0.42840	0.07307	-0.41080	-0.65326
SUPPDEP	0.63354	0.04083	-0.41454	-0.39709
MONEYDEP	0.39184	0.03081	-0.08979	0.25124
INFODEP	0.72395	-0.11775	-0.31652	0.42480
SIZE	0.54759	0.66593	-0.10381	-0.21140

Variable	Communality	Factor	Eigenvalue	Pct. of Var.	Cum Pct.
FUNDS	0.73190	1	5.27139	50.0	50.0
AVEREDUC	0.83179	2	2.43550	23.1	73.0
ADMINS	0.91753	3	1.61888	15.3	88.4
INFLDK	0.81846	4	1.22573	11.6	100.0
OUTFLDK	0.85143				
INFSSAS	0.95425				
MONSSASS	0.58152				
SUPSSASS	0.67776				
AGELOCAL	0.22503				
HDQT	0.60181				
AUTONOMY	0.78435				
SUPPDEP	0.73257				
MONEYDEP	0.22568				
INFODEP	0.81860				
SIZE	0.79878				

factor to the fifth factor. Moreover, the eigenvalue for the fifth factor falls well below the 1.0 cutoff (Gorsuch, 1974:155; Rummel, 1970:353; Harman, 1976:163). This indicates that, mathematically, we should retain four factors. As we shall see below, these make substantive sense as well.

The orthogonal rotation simplified the structure. If, for example, we compare the factor matrix with the varimax rotated matrix, it can be seen that the rotated matrix has a more simplified structure (see Tables 1 and 2). Furthermore, if we look at the variance (see Table 3) we see that it drops off after the fourth factor.

### Interpretation

When considering the interpretation of the factors we are aided by the way in which variables load or do not load on the factor in question. In reality, however, we are only concerned with salient loadings.

A salient loading is one which is sufficiently high to assume that a relationship exists between the variable and the factor. (Gorsuch, 1974:184).

This usually means that the relationship is high enough to aid in the interpretation of the factor and vice versa. Once again, the size of our sample plays an important role. As Gorsuch points out (1974:185), with a sample size of 100, only elements with an absolute value greater than 0.40 may be considered salient. Generally, one wishes to have a sufficiently large sample so that loadings of interest for interpretation are significant (Gorsuch, 1974:185). In this study a salient loading is one that will exceed approximately 0.40.

As mentioned above, essentially four factors emerged as significant. When considering the interpretation of factors we are aided considerably by substantive knowledge of a particular area.

The first factor, the resource structure factor, is determined mainly by

TABLE 2

## VARIMAX ROTATED FACTOR MATRIX

	<u>Factor 1</u>	<u>Factor 2</u>	<u>Factor 3</u>	<u>Factor 4</u>
FUNDS	-0.08358	-0.01162	0.85001*	-0.04766
AVEREDUC	0.30359	0.79732*	0.27259	0.17203
ADMINS	-0.03111	-0.06316	0.95385*	-0.05233
INFLDK	0.18014	0.83840*	-0.27299	0.09257
OUTFLDK	0.16707	0.89296*	-0.14124	0.07871
INFSSASS	0.94095*	0.18814	0.00190	0.18294
MONSSASS	0.59853*	0.37433	-0.17788	0.22699
SUPSSASS	0.75954*	0.19729	-0.08428	0.23416
AGELOCAL	0.13994	0.37554	0.16743	-0.19076*
HDQT	0.23563	0.55545*	0.32888	0.35999*
AUTONOMY	0.08523	0.02622	-0.02833	0.88069*
SUPPDEP	0.37927	0.10874	0.00015	0.75954
MONEYDEP	0.44744*	0.12445	0.09979	0.00489
INFODEP	0.89224*	0.12364	0.00163	0.08495
SIZE	0.20705	0.25127	0.64972*	0.52023*

\*Indicates salient loadings.

TABLE 3

## FACTORS, EIGENVALUES, AND VARIANCES

Factor	Eigenvalues	Pct of Var	Cum Pct
1	5.52428	36.8	36.8
2	2.63314	17.6	54.4
3	1.87377	12.5	66.9
4	1.50844	10.1	76.9
5	0.79121	5.3	82.2
6	0.69690	4.6	86.9
7	0.59725	4.0	90.8
8	0.34145	2.3	93.1
9	0.31386	2.1	95.2
10	0.19758	1.3	96.5
11	0.18916	1.3	97.8
12	0.13042	0.9	98.7
13	0.10903	0.7	99.4
14	0.06087	0.4	99.8
15	0.03252	0.2	100.0

centrality scores for the three networks of money, information and moral support. Also loading upon this factor were two of the resource dependency variables (MONEYDEP and INFODEP).

This factor may be interpreted as measuring various characteristics of an organization's resource networks--exchanges. One can see that an organization's centrality in various resource networks, as well as its resource dependency are closely related.

Our second factor, local structural dependence, is determined primarily by the total amount locally expended funds (OUTFLDK) and the total amount of local income (INFLDK). These variables are measures of economic inflows and outflows within the community. The average education of members of an organization loaded on this factor. Finally, the variable measuring the autonomy of an organization with regard to its parent or sister organization (HDQT) loaded on this factor.

The fact that the two economic measures of local community dependence loaded on this factor, along with the autonomy measures, lead us to interpret this factor, for the most part, as being an indicator of local structural dependence.

The third factor, size characteristics, was comprised of the total amount of expendible funds (FUNDS), the total number of administrators (ADMINS) and the (log of the) number of members or employees in an organization (SIZE).

This factor may be regarded as representing size characteristics. For example, size has been variously measured as the number of members, amount of resources, or amount of funds an organization possesses. These, along with the number of administrators are all associated with size as our study, as well as others (Champion, 1975:153-156), has demonstrated.

Finally, our fourth factor, autonomy, is mainly determined by an organization's autonomy with regard to its parent or sister organization (AUTONOMY), resource dependency, with regard to moral support (SUPPDEP), and the SIZE of an organization. It is also interesting to note that HDQT, our other measure of autonomy, also loaded on this factor, although it was just below our salient loading cutoff point.

This may be interpreted as an autonomy factor. That is, it measures how autonomous an organization might be with regard to a particular decision because of its relative autonomy from its parent or sister organization, and how dependent it is upon other organizations for moral support--i.e., commitments--in order to make various decisions.

As was mentioned above four basic factors or dimensions emerged: (1) the resource structure factor, which measures an organization's position (centrality) in various resource networks, and its dependence on other organizations for these resources; (2) the local structural dependence factor, which measures an organization's economic dependence upon the local community and its dependence upon its sister or parent organization; (3) the size characteristics dimension, which measures characteristics associated with size; and (4) the autonomy factor, which measures an organization's dependence on its parent or sister organization and its dependence on a small group of organizations for its moral support.

Since we are interested in constructing a particular model we shall utilize the emergent factors or dimensions in formulating a model for predicting the reputed influence or power of an organization, the dependent variable, heretofore, not included in the analysis. (INFLRNK)

We would expect organizations which occupy central positions in various resource networks would tend to be perceived as being powerful.



That is, actors which have a good deal of access to resources because of their central position in a network, will be perceived as influential. There is a good deal of literature in the community organization field to support this (Freeman, et al., 1963; Preston, 1969). Thus, we shall make the following proposition:

Proposition 1      The more central an organization is in various resource networks, the more likely such an organization is to be perceived as powerful.

Moreover, we expect that organizations which are less dependent with regard to resources will be perceived as being more powerful. This is derived from the literature on exchange theory (Blau, 1964b; Homans, 1974), and power-dependence relations (Emerson, 1962; Yuchtman and Seashore, 1967). As Thompson (1967:30-34) points out, organizations seek to minimize the concentration of power over itself by scattering its dependence over a relatively large number of organizations which supply various resources. That is, organizations will seek to avoid a concentration of their dependence. This leads to a second proposition.

Proposition 2      Organizations which have a concentrated resource dependence will be less likely to be perceived as powerful.

Given the fact that centrality and resource dependence loaded on the resource structure dimension, a third proposition may be proposed.

Proposition 3      The more central an organization is in various resource networks, and the less concentrated its dependence, the more likely it is to be perceived as powerful.

Operationally this may be stated as follows: Organizations which score high on factor 1, will be more likely to be perceived as powerful.

Further, we would expect organizations which are large in size and size related characteristics (i.e., amount of funds, number of administra-

tors) are more likely to be perceived as powerful. This is essentially a base resources argument. Clark (1975; 1976:17-19) has shown, as have Freeman, et al. (1963) and Preston (1969), that base resources play a large role in determining whether or not an actor is perceived as powerful.

Proposition 4      Organizations which are large in size and size characteristics are more likely to be perceived as powerful.

This will be operationalized in the following way: Organizations which score high on factor 3, will be perceived as more powerful.

Further, one would expect organizations which are more autonomous with regard to their parent and sister organizations, and possessing a relatively diffuse moral support dependence, to be perceived as powerful. Organizations which are more autonomous in this respect will have more leeway in decision-making because it will have fewer constraints and contingencies.

Proposition 5      The more autonomous an organization is, the more likely it is to be perceived as powerful.

That is, organizations which score high on factor 4 will be more likely to be perceived as powerful.

Finally, organizations which are economically dependent upon their local community would be more likely to be perceived as powerful. This stems from the fact that organizations which have vested interests in the community are more likely to be active, and in turn, more likely to be perceived as powerful (Clark, 1973).

Proposition 6      The more economically dependent an organization is on the local community, the more likely it is to be perceived as powerful.

Or, organizations which score high on factor 2, will be more likely to be perceived as powerful.

Given these propositions, the following model will be tested:

Reputed influence = Resource structure (factor 1) + Local  
structural dependence (factor 2) +  
Size characteristics (factor 3) +  
Autonomy (factor 4)

It should be noted that a causal ordering of the independent variables has not been attempted. This is because there has been little previous research in this area, and little systematic theory as well.

In order to test our model we shall use multiple regression. In actuality, we will not be correlating the factors, but rather, the factor scores generated for each organization.

### Regression

Once we have reached our final factor analytic solution, it is useful to construct composite scales which are representations of the theoretical dimensions associated with the factors (Gorsuch, 1974:228-245; Kim, 1975: 487-489). We have utilized the approximate procedure for calculating the factor scores, as opposed to the exact method, and therefore only used salient loadings in the construction of the factor scores. This method was used because of the relatively small size of our sample, and therefore, only salient loadings were significant (Gorsuch, 1974:236-240).

Thus, we will be using factor scores for each respective organization in our multiple regression analysis.

Upon inspection of the correlation matrix (see Table 4) there appears to be a good deal of correlation between our factors, e.g., factors 3 and 4 (.997). Although, theoretically, because of our orthogonal solution, we would not expect multicollinearity to be a problem, it does in reality pose one.

If we look at the results of our regression (Tables 5-6) it can be

seen that the resource structure factor (factor 1) plays a large role in the prediction of reputed influence. Moreover, the size characteristics factor was significant in predicting reputed influence as well. Our results show that the addition of the local structural dependence variable (factor 2) or the autonomy factor (factor 4) to the regression equation would not provide a significant improvement in prediction (see Tables 7-8).

Our two factor model (i.e., factors 1 and 3) is fairly effective, accounting for 54.5 per cent of the variance in reputed influence (see Table 6).

From our results, it appears that the factors are highly correlated, and the addition of factors 2 and 4 to the regression equation was not significant once factors 1 and 3 had explained their variance.

#### Summary, Conclusion, and Suggestions for Future Research

After constructing a model to predict an organization's reputed influence in a given community, it was found that much of the theoretical literature on interorganizational relations was supported. For example, it was found that centrality in various resource networks and resource dependence, i.e., which constitute factor 1, were important predictors of an organization's reputed influence--i.e., its position in the influence hierarchy.

Thus, our findings lend support to the exchange theorists (Blau, 1964b; Homans, 1974). Emerson (1962) and Thompson (1967), who argue that dependence is the obverse of power. Organizations which have access to a number of alternative sources of needed resources, i.e., organizations which have less concentration of their dependence, tended to be viewed as more influential. This also lends credence to the resource dependence approach (Yuchtman and Seashore, 1967; Mindlin and Aldrich, 1975).

TABLE 4

## CORRELATION COEFFICIENTS

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	INFLRNK	FCSCORE1	FCSCORE2	FCSCORE3	FCSCORE4
INFLRNK	1.00000	0.70201	0.39297	0.14111	0.16708
FCSCORE1	0.70201	1.00000	0.56249	0.48578	0.51595
FCSCORE2	0.39297	0.56349	1.00000	0.29043	0.31660
FCSCORE3	0.14111	0.38578	0.29043	1.00000	0.99724
FCSCORE4	0.16708	0.51595	0.31660	0.99724	1.0000

---

TABLE 5

## REGRESSION ANALYSIS RESULTS: BASED ON TWO FACTORS

Dependent Variable INFLRNK

Variable(s) Entered on Step Number 1 FCSCORE1

Multiple R	0.70201	Analysis of Variance	DF	Sum of Squares	Mean Square	F
R Square	0.49281	Regression	1.	55653.09005	55653.09005	79.67598
Adjusted R Square	0.48663	Residual	82.	57275.39805	698.49266	
Standard Error	26.42901					

Variables in the Equation					Variables Not in the Equation				
Variable	B	Beta	Std Error B	F	Variable	Beta In	Partial	Tolerance	F
FCSCORE1	5.562170	0.70201	0.62313	79.676	FCSCORE2	-0.00279	-0.00324	0.68360	0.001
(Constant)	40.84225				FCSCORE3	-0.26166	-0.32115	0.76402	9.315
					FCSCORE4	-0.26590	-0.31983	0.73380	9.230

Variable(s) Entered on Step Number 2 FCSCORE3

Multiple R	0.734832	Analysis of Variance	DF	Sum of Squares	Mean Square	F
R Square	0.54512	Regression	2.	61560.40691	30780.20346	48.53496
Adjusted R Square	0.53389	Residual	81.			
Standard Error	25.18305					

Variables in the Equation					Variables Not in the Equation				
Variable	B	Beta	Std Error B	F	Variable	Beta In	Partial	Tolerance	F
FCSCORE1	6.569294	0.82912	0.67929	93.524	FCSCORE2	0.00379	0.00464	0.68321	0.002
FCORE3	-0.2641612	-0.26166	0.08655	9.315	FCSCORE4	0.05716	0.00551	0.00422	0.002
(Constant)	46.05002								

F-Level or Tolerance-Level insufficient for further computation.

TABLE 6

## REGRESSION ANALYSIS RESULTS: SUMMARY TABLE

Dependent Variable INFLRNK						
Variable	Multiple R	R Square	RSQ Change	Simple R	B	Beta
FCSCORE1	0.70201	0.49281	0.49281	0.70201	6.569294	0.82912
FCSCORE3	0.73832	0.54512	0.05231	0.14111	-0.2641612	-0.26166
(Constant)					46.05002	

TABLE 7

## REGRESSION ANALYSIS RESULTS: BASED ON ALL FOUR FACTORS

Dependent Variable INFLRNK

Variable(s) Entered on Step Number 1 FCSCORE4  
 FCSCORE1  
 FCSCORE2  
 FCSCORE3

Multiple R	0.73834	Analysis of Variance	DF	Sum of Squares	Mean Square	F
R Square	0.54514	Regression	4.	61562.67378	15390.66844	23.67020
Adjusted R Square	0.52211	Residual	79	51366.81432	650.21282	
Standard Error	25.49927					

Variables in the Equation					Variables Not In The Equation			
Variable	B	Beta	Std Error	R	F	Variable	Beta In	Partial Tolerance
FCSCORE4	0.5009690D-01	0.05015	1.18594		0.002			
FCSCORE1	6.539432	0.82535	0.		58.14			
FCSCORE2	0.2589014D-01	0.00308	0.78353		0.001			
FCSCORE3	46.05413	-0.31074	1.17415		0.071			

All variables are in the equation.



TABLE 8

## REGRESSION ANALYSIS RESULTS: SUMMARY TABLE

Dependent Variable INFLRNK						
Variable	Multiple R	R Square	RSQ Change	Simple R		Beta
FCSCORE4	0.16708	0.02792	0.02792	0.16708	0.50096	0.05015
FCSCORE1	0.73803	0.54469	0.51678	0.70201	6.539432	0.82535
FCSCORE2	0.73806	0.54473	0.00004	0.39297	0.258904	0.00308
FCSCORE3	0.73834	0.54514	0.00041	0.14111	-0.313707	-0.31074
(Constant)				46.05413		

It was also found that local structural dependence, factor 2, and autonomy, factor 4, although related to the dependent variable, influence, were, nonetheless, relatively unimportant predictors once factors 1 and 3 had been entered into the regression equation. This is, in part, a result of the fact that these factors were all correlated. It appears that once factors 1 and 3 had been entered into the regression equation and explained the variance, factors 2 and 4 explain little of the remaining variance.

We conclude that the two factor model was fairly effective since it explained approximately 54.5 per cent of the variance.

#### Two Variable Model

Influence = Resource Structure (Factor 1) + Size Characteristics  
(Factor 2)

Future research should look at the relationships between these factors in order to develop a time-ordered model.

Moreover, in the future, a better measure of resource dependence should be developed. That is, such a measure should not only consider the number of suppliers of a particular resource, but also their relative importance. Some suppliers are likely to be more important than others. In addition, the number of competitors an organization has in the community for resources, markets, etc. should be considered.

We shall conclude by noting that research at the interorganizational level is important not only for the organizational field in sociology, but may have some important implications in the field of community decision-making. For example, knowing the influence hierarchy of organizations in a given community may well provide fruitful inroads to the explanation of outcomes in community decision-making.

It is also important to keep in mind that before research progresses

much farther in this area, a more consensual definition of power must be developed. Equally important, is the distinction between power and influence which have been made by some theorists (Clark, 1975:275; 1976:17-19). Such a distinction has had important consequences in the field of community decision-making, and will be important if an interorganizational approach is used to study community-decision making.

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The final copies have been examined by the director of the thesis and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the thesis is now given final approval by the Committee with reference to content and form.

This thesis is therefore accepted in partial fulfillment of the requirements for the degree of Master of Arts.

Dec 1, 1978

Date

William Bates

Director's Signature